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EXAMINER	
BORSETTI, GREG	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/591,374	DAVIS, MARK FRANKLIN	
	Examiner	Art Unit	
	GREG A. BORSETTI	4141	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 August 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4,5,9,15,17-19,22,39-57 and 59* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4,5,9,15,17-19,22,39-57 and 59* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 August 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/8/08, 4/28/08, 6/4/07, 8/21/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to preliminary amendment filed on 8/31/2006

2. Claims 2, 3, 6-8,10-14,16, 20-21,23-38, 58, 60-62 are canceled.

3. Claims 4-5, 9, 15, 17-19, 22, 39-57, 59 are amended.

4. Claims 1, 4-5, 9, 15, 17-19, 22, 39-57, 59 are pending.

Information Disclosure Statement

5. The Information Disclosure Statement (IDS) submitted on 4/8/2008 is in compliance with the provisions of 37 CFR 1.97.

6. The Information Disclosure Statement (IDS) submitted on 8/21/2007 is in compliance with the provisions of 37 CFR 1.97.

7. The Information Disclosure Statement (IDS) submitted on 6/4/2007 is not in compliance with the provisions of 37 CFR 1.97.

- NPL document authored by Cheng et al. does not have a date

8. The Information Disclosure Statement (IDS) submitted on 6/4/2007 is not in compliance with the provisions of 37 CFR 1.97.

- NPL document authored by Edmonds et al. does not have a date

Drawings

9. The drawings filed on 8/31/2006 are accepted by the examiner.

Specification

10. The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code on Page 1. Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01. Page 1.

Claim Objections

11. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not). Misnumbered claims 2-3, 4, 5, 6-8, 9, 10-28, 29 should be renumbered back to 4-5, 9, 15, 17-19, 22, 39-57, 59, as in the original.

NOTE FROM THE EXAMINER: For the purposes of **this Office Action only**, **below**, but not in the attached Index of Claims, the claims will be referred to as the newly numbered claims and not the original numbers, to avoid confusion. However, a clean version with the **original** claim numbers, as in the Index of Claims, is required subsequent to this action.

12. Claims 10 and 28 are objected to for the following informalities: The claims recite “one or ones of said spatial parameters”. The examiner suggests “at least one of" or

"one or more".

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

13. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim recites "which angle is substantially time invariant…" It is not fully defined to what extent an angle is considered to be time invariant. In other words, what does "substantial" mean? For the purposes of examination, the word substantial will not be considered to have patentable weight.

14. Claim 9 is further rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 9 recites "said second mode of operation comprises shifting the phase angles of all the spectral components in said at least one or more of the plurality of frequency bands by the same angle, wherein a different phase angle shift is applied in which phase angles are shifted…" The claim language is contradictory in that the phase angles are the same and different. For the purposes of examination, the shift will be considered to have the same angle.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the

conditions and requirements of this title.

15. Claim(s) 1-9 is/are rejected under 35 USC 101 for being nonstatutory. Under the most recent interpretation of the Interim Guidelines regarding 35 U.S.C.101, a method claim must (1) be tied to another statutory class or (2) transform underlying subject matter to a different state or thing. If no transformation occurs, the claim(s) should positively recite the other statutory class to which it is tied to qualify as a statutory process under 35 U.S.C. 101. As for guidance to areas of statutory subject matter, see 35 U.S.C. 101 Interim Guidelines (with emphasis of the Clarification of "processes" under 35 USC 101); As an example, the claim(s) could identify the apparatus that accomplishes the method steps, or positively recite the subject matter that is being transformed.

As per independent claim 1, the claim may be interpreted as a human performing the calculations for determining a set of spatial parameters of the at least two input audio channels, the set of parameters including a first parameter responsive to a measure of the extent to which spectral components in a first input channel change over time and to a measure of the similarity of the interchannel phase angles of said spectral components of said input channel relative to those of another input channel. Dependent claims 2-5 fail to further identify another statutory class or transformation.

As per independent claim 6, the claim may be interpreted as a human performing the method of determining a set of spatial parameters of the at least two input audio channels, the set of parameters including a parameter responsive to the occurrence of a transient in a first input channel.

As per independent claim 7-9, the claim may be interpreted as a human performing the method of shifting the phase angles of spectral components in the audio signal at least partly in accordance with a first mode of operation and a second mode of operation. Dependent claims 8-9 fail to further identify another statutory class or transformation.

As per independent claim 10, the method may be interpreted as a human performing the calculations for deriving N audio channels from said M audio channels, wherein an audio signal in each audio channel is divided into a plurality of frequency bands, wherein each band comprises one or more spectral components, and shifting the phase angle of spectral components in the audio signal in at least one of the N audio channels in response to one or ones of said spatial parameters, wherein said shifting is at least partly in accordance with a first mode of operation and a second mode of operation. Dependent claims 11-27 fail to further identify another statutory class or transformation.

As per independent claim 28, the method may be interpreted as a human performing the calculations for deriving N audio channels from said M audio channels, wherein said N audio channels are derived from said M audio channels by a process that includes actively dematrixing said M audio channels, wherein the dematrixing operates at least partly in response to characteristics of said M audio channels and at least partly in response to one or ones of said spatial parameters.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

16. Claims 1-5, and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Van De Par et al. (EP 1479071)

As per claim 1, Van De Par teaches:

determining a set of spatial parameters of the at least two input audio channels, the set of parameters including a first parameter responsive to a measure of the extent to which spectral components in a first input channel change over time and to a measure of the similarity of the interchannel phase angles of said spectral components of said input channel relative to those of another input channel. (¶ 0015, ¶ 0037, The amplitude for a given frequency changes over time.)

As per claim 2, claim 1 is incorporated and Van De Par teaches:

wherein the set of parameters further includes a further parameter responsive to the phase angle of spectral components in said first input channel relative to the phase angle of spectral components in said another input channel. (¶ 0037, *phase of the average or maximum amplitude (optional) and a multi-channel extension*

captured in the parameters delta amplitude and delta phase (optional)…)

As per claim 3, claim 1 is incorporated and Van De Par teaches:

generating a monophonic audio signal derived from said at least two input audio channels. (¶ 0037, …*The representation with a common frequency parameter and respective amplitudes (and optionally respective phases) can be regarded as a mono representation … The mono parameters can be treated as standard parameters that one would get in a mono sinusoidal encoder*…)

As per claim 4, claim 1 is incorporated and Van De Par teaches:

generating multiple audio signals derived from said at least two input audio channels. (¶ 0037, …*the mono parameters may be included in a base layer, whereas the multi-channel parameters are included in an enhancement layer*…)

As per claim 5, claim 1 is incorporated and Van De Par teaches:

wherein the set of parameters further includes a parameter responsive to the amplitude or energy of said first input channel. (¶ 0042, …*delta amplitude*…)

As per claim 29, Van De Par teaches:

A computer program, stored on a computer-readable medium for causing a computer to perform the methods of any one of claims 1, 6, 7, 10, and 28.

(¶ 0044, …*The invention can be implemented by means of hardware comprising several distinct elements, and by means of a suitably programmed computer*…)

17. Claims 7-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Kendall et al. (US Patent #5121433).

As per claim 7, Kendall teaches:

shifting the phase angles of spectral components in the audio signal at least partly in accordance with a first mode of operation and a second mode of operation. (column 3, lines 54-67 to column 4, lines 1-20, the shifting can be random or not random as long as is fulfills the requirements listed in column 4.)

As per claim 8, claim 7 is incorporated and Kendall teaches:

wherein shifting the phase angles of spectral components in the audio signal in accordance with a first mode of operation includes shifting the phase angles of spectral components in the audio signal in accordance with a first frequency resolution and a first time resolution, and shifting the phase angles of spectral components in the audio signal in accordance with a second mode of operation includes shifting the phase angles of spectral components in the audio signal in accordance with a second frequency resolution and a second time resolution. (column 3, lines 54-67 to column 4, lines 1-20 and column 5, 13-24, Kendall operates on a multi-channel signal, each channel inherently has frequency and time resolutions because they are digitized.

(column 4, line 40). Therefore, depending on the channel, a different mode is operational.)

18. Claim 28 is rejected under 35 U.S.C. 102(b) as being anticipated by Griesinger. (US Patent #5870480)

As per claim 28, Griesinger teaches:

deriving N audio channels from said M audio channels,

(Fig. 3 shows the channel separation.)

wherein said N audio channels are derived from said M audio channels by a process that includes actively dematrixing said M audio channels, (column 2, lines 17-48, ...*most modern decoders employ some variation of the matrix coefficients with the apparent direction of the predominant sound source, that is, they are active rather than passive*… In matrix encoding/decoding dematrixing is required.)

wherein the dematrixing operates at least partly in response to characteristics of said M audio channels and at least partly in response to one or ones of said spatial parameters. (column 2, lines 17-48, ...*most modern decoders employ some variation of the matrix coefficients with the apparent direction of the predominant sound source, that is, they are active rather than passive*… The direction of the predominant sound source is a characteristic of the channel because the channels are used for spatial separation.)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

19. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable by Van De Par et al. (EP 1479071) in view of Oomen et al. (US PGPUB 20010032087)

As per claim 6, Van De Par teaches a multi-channel system (¶ 0037) and Oomen further teaches:

determining a set of spatial parameters of the at least two input audio channels, the set of parameters including a parameter responsive to the occurrence of a transient in a first input channel. (¶ 0025, …*shape function*…)

It would have been obvious to someone of ordinary skill in the art at the time of the invention to combine Oomen with Van De Par to take transient signal characteristics into consideration because they can affect coding efficiency depending on the change in energy levels. (¶ 0006, ¶ 0009)

20. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable by Kendall et al. (US Patent #5121433) in view of Sheiber. (US Patent #5857026)

As per claim 9, claim 7 is incorporated and Kendall fails to fully teach, but Sheiber teaches:

wherein said first mode of operation comprises shifting the phase angle of spectral components in at least one or more of the plurality of frequency bands, wherein each spectral component is shifted by a different angle, which angle is substantially time invariant, and said second mode of operation comprises shifting the phase angles of all the spectral components in said at least one or more of the plurality of frequency bands by the same angle, wherein a different phase angle shift is applied to each frequency band in which phase angles are shifted and which phase angle shift varies with time. (column 4, lines 1-21, the phase shift may be applied over varying frequency or time. A varying frequency phase shift would varying phase over frequency bands and be substantially time invariant. A varying time phase shift is substantially frequency invariant in that it would be applied across multiple frequency bands.)

It would have been obvious to someone of ordinary skill in the art at the time of the invention to combine Sheiber with Kendall to provide addition location encoding information through the use of decorrelation and varying phase differences in the channels. (column 3, lines 18-67)

21. Claims 10-15, 20, 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable by Griesinger. (US Patent #5870480) in view of Kendall et al. (US Patent #5121433) in view of Sheiber. (US Patent #5857026).

As per claim 10, Griesinger teaches:

deriving N audio channels from said M audio channels,

(Fig. 3 shows the channel separation.

shifting the phase angle of spectral components in the audio signal in at least one of the N audio channels in response to one or ones of said spatial parameters,

(column 11, lines 12-30, …*The phase shift is made a function of the log ratio of center over surround, and is inactive when there is forward steering*…)

Griesinger fails to specifically teach, but Kendall teaches:

wherein an audio signal in each audio channel is divided into a plurality of frequency bands, wherein each band comprises one or more spectral components, and

(column 3, lines 54-67, …*Phase processor 300 utilizes a plurality of bandpass filters 120 to divide an input signal x(t) into M frequency bands*…)

It would have been obvious to someone of ordinary skill in the art at the time of the invention to combine Kendall with Griesinger to provide an improved system for sound reproduction by filtering frequencies based on distance from the speaker to a location in question in an effort to counter the effects of interference between sound patterns generated by different loudspeakers in a multi-loudspeaker sound reproduction system. (abstract and column 1, lines 11-33)

Griesinger and Kendall fail to specifically teach, but Sheiber teaches:

wherein said shifting is at least partly in accordance with a first mode of operation and a second mode of operation. (column 4, lines 1-21, the phase shift may be applied over varying frequency or time. A varying frequency phase shift would varying phase over frequency bands and be substantially time invariant. A varying time phase shift is substantially frequency invariant in that it would be applied across multiple frequency bands.)

It would have been obvious to someone of ordinary skill in the art at the time of the invention to combine Sheiber with Griesinger and Kendall to provide addition location encoding information through the use of decorrelation and varying phase differences in the channels. (column 3, lines 18-67)

As per claim 11, claim 10 is incorporated and Griesinger teaches:

wherein said N audio channels are derived from said M audio channels by a process that includes passively or actively dematrixing said M audio channels. (column 2, lines 17-48, ...*most modern decoders employ some variation of the matrix coefficients with the apparent direction of the predominant sound source, that is, they are active rather than passive*… In matrix encoding/decoding dematrixing is required.)

As per claim 12, claim 10 is incorporated and Griesinger teaches:

where M is two or more and said N audio channels are derived from said M audio channels by a process that includes actively dematrixing said M audio channels. (column 2, lines 17-48, ...*most modern decoders employ some variation of the matrix*

coefficients with the apparent direction of the predominant sound source, that is, they are active rather than passive… In matrix encoding/decoding dematrixing is required.)

As per claim 13, claim 12 is incorporated and Griesinger teaches:

wherein the dematrixing operates at least partly in response to characteristics of said M audio channels. (column 2, lines 17-48, ...*most modern decoders employ some variation of the matrix coefficients with the apparent direction of the predominant sound source, that is, they are active rather than passive*… The direction of the predominant sound source is a characteristic of the channel because the channels are used for spatial separation.)

As per claim 14, claims 12 or 13 are incorporated and Griesinger teaches:

wherein the dematrixing operates at least partly in response to one or ones of said spatial parameters. (column 2, lines 17-48, ...*most modern decoders employ some variation of the matrix coefficients with the apparent direction of the predominant sound source, that is, they are active rather than passive*… The direction of the predominant sound source is a spatial parameter.)

As per claim 15, claim 10 is incorporated and Griesinger fails to specifically teach, but Kendall teaches:

wherein shifting the phase angles of spectral components in the audio signal in accordance with a first mode of operation includes shifting the phase angles of spectral

components in the audio signal in accordance with a first frequency resolution and a first time resolution, and shifting the phase angles of spectral components in the audio signal in accordance with a second mode of operation includes shifting the phase angles of spectral components in the audio signal in accordance with a second frequency resolution and a second time resolution. (column 3, lines 54-67 to column 4, lines 1-20 and column 5, 13-24, Kendall operates on a multi-channel signal, each channel inherently has frequency and time resolutions because they are digitized. (column 4, line 40). Therefore, depending on the channel, a different mode is operational.)

It would have been obvious to someone of ordinary skill in the art at the time of the invention to combine Kendall with Griesinger to provide an improved system for sound reproduction by filtering frequencies based on distance from the speaker to a location in question in an effort to counter the effects of interference between sound patterns generated by different loudspeakers in a multi-loudspeaker sound reproduction system. (abstract and column 1, lines 11-33)

As per claim 20, claim 10 is incorporated and Griesinger and Kendall fail to specifically teach, but Sheiber teaches:

wherein said first mode of operation comprises shifting the phase angle of spectral components in at least one or more of the plurality of frequency bands, wherein each spectral component is shifted by a different angle, which angle is substantially time invariant, and said second mode of operation comprises shifting the phase angles of all

the spectral components in said at least one or more of the plurality of frequency bands by the same angle, wherein a different phase angle shift is applied to each frequency band in which phase angles are shifted and which phase angle shift varies with time. (column 4, lines 1-21, the phase shift may be applied over varying frequency or time. A varying frequency phase shift would varying phase over frequency bands and be substantially time invariant. A varying time phase shift is substantially frequency invariant in that it would be applied across multiple frequency bands.)

It would have been obvious to someone of ordinary skill in the art at the time of the invention to combine Sheiber with Griesinger and Kendall to provide addition location encoding information through the use of decorrelation and varying phase differences in the channels. (column 3, lines 18-67)

As per claim 22, claim 10 is incorporated and Griesinger and Kendall fail to specifically teach, but Sheiber teaches:

wherein the first mode of operation comprises shifting the phase angle of spectral components in at least one or more of the plurality of frequency bands, wherein each spectral component is shifted by a different angle, which angle is substantially time invariant, and said second mode of operation comprises no shifting of the phase angles of spectral components. (column 4, lines 1-21, the phase shift may be applied over varying frequency or time. A varying frequency phase shift would varying phase over frequency bands and be substantially time invariant. Column 14, lines 7-14 further states, ...*For simplicity, in FIG. 9, the decorrelated signal component controlled by*

variable-gain element 859 is derived by bypassing all-pass phase shifters 865-868, resulting in the phase of this signal component varying with frequency as compared…)

It would have been obvious to someone of ordinary skill in the art at the time of the invention to combine Sheiber with Griesinger and Kendall to provide addition location encoding information through the use of decorrelation and varying phase differences in the channels. (column 3, lines 18-67)

As per claim 23, claim 22 is incorporated and Griesinger fails to specifically teach, but Kendall teaches:

wherein said shifting includes a randomized shifting. (column 3, lines 54-56, …*The preferred embodiment of the present invention provides the desired randomization by utilizing a p(w) which is a sequence random values between -.pi. and .pi*…)

It would have been obvious to someone of ordinary skill in the art at the time of the invention to combine Kendall with Griesinger to provide an improved system for sound reproduction by filtering frequencies based on distance from the speaker to a location in question in an effort to counter the effects of interference between sound patterns generated by different loudspeakers in a multi-loudspeaker sound reproduction system. (abstract and column 1, lines 11-33)

As per claim 24, claim 23 is incorporated and Griesinger fails to specifically teach, but Kendall teaches:

wherein the amount of said randomized shifting is controllable.

(column 3, lines 54-56, …*The preferred embodiment of the present invention provides the desired randomization by utilizing a p(w) which is a sequence random values between -.pi. and .pi*…)

It would have been obvious to someone of ordinary skill in the art at the time of the invention to combine Kendall with Griesinger to provide an improved system for sound reproduction by filtering frequencies based on distance from the speaker to a location in question in an effort to counter the effects of interference between sound patterns generated by different loudspeakers in a multi-loudspeaker sound reproduction system. (abstract and column 1, lines 11-33)

22. Claims 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable by Griesinger. (US Patent #5870480) in view of Kendall et al. (US Patent #5121433) in view of Sheiber. (US Patent #5857026) and further in view of Faller et al. (NPL Document " Binaural Cue Coding—Part II: Schemes and Applications")

As per claim 25, claim 10 is incorporated and Griesinginer and Kendall fail to specifically teach, but Sheiber teaches:

a first mode of operation and a second mode of operation.

(column 4, lines 1-21, the phase shift may be applied over varying frequency or time. A varying frequency phase shift would varying phase over frequency bands and be substantially time invariant. A varying time phase shift is substantially frequency

invariant in that it would be applied across multiple frequency bands.)

Griesinginer, Kendall, and Sheiber fail to specifically teach, but Faller teaches:

further comprising shifting the magnitudes of spectral components in the audio signal in response to one or ones of said spatial parameters (Page 523, column 2, …*random numbers for controlling the degree of correlation between the channel pairs*… The channels are used for spatial perception.)

It would have been obvious to someone of ordinary skill in the art at the time of the invention to combine Faller with Griesinginer, Kendall, and Sheiber to provide a perceptually meaningful way to reduce correlation between channel pairs. (Page 524, column 1)

As per claim 26, claim 25 is incorporated and Griesinginer, Kendall, and Sheiber fail to specifically teach, but Faller teaches:

wherein shifting the magnitude includes a randomized shifting. (Page 523, column 2, …*random numbers for controlling the degree of correlation between the channel pairs*…)

It would have been obvious to someone of ordinary skill in the art at the time of the invention to combine Faller with Griesinginer, Kendall, and Sheiber to provide a perceptually meaningful way to reduce correlation between channel pairs. (Page 524, column 1)

As per claim 27, claim 26 is incorporated and Griesinginer, Kendall, and Sheiber fail to specifically teach, but Faller teaches:

wherein the amount of shifting the magnitude is controllable. (Page 523, column 2, *…random numbers for controlling the degree of correlation between the channel pairs*… Equation 11 controls the shift.)

It would have been obvious to someone of ordinary skill in the art at the time of the invention to combine Faller with Griesinginer, Kendall, and Sheiber to provide a perceptually meaningful way to reduce correlation between channel pairs. (Page 524, column 1)

23. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable by Griesinger. (US Patent #5870480) in view of Kendall et al. (US Patent #5121433) in view of Sheiber. (US Patent #5857026) and further in view of Official Notice MPEP 2144.03

As per claim 21, claim 20 is incorporated and Griesinger, Kendall, and Sheiber fail to specifically teach and Official Notice is taken:

wherein in said second mode of operation the phase angles of spectral components within a frequency band are interpolated to reduce phase angle changes from spectral component to spectral component across a frequency band boundary. (Official Notice is taken because it would have been obvious to someone of ordinary skill in the art at the time of the invention that phase angles would be interpolated

across subband boundaries to linearize the phase across frequencies to keep a constant group delay which reduces phase distortion.)

24. Claims 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable by Griesinger. (US Patent #5870480) in view of Kendall et al. (US Patent #5121433) in view of Sheiber. (US Patent #5857026) and further in view of NPL Document ("ATSC Standard: Digital Audio Compression (AC-3), Revision A" hereinafter Standard.)

As per claim 16, claim 15 is incorporated and Griesinger, Kendall, and Sheiber fail to specifically teach, but Standard teaches:

wherein the second time resolution is finer than the first time resolution. (Page 98, Section 7.9.1, Standard provides transform length decisions. A short transform length provides greater time resolution.)

It would have been obvious to someone of ordinary skill in the art at the time of the invention to combine Standard with Griesinger, Kendall, and Sheiber to specifically provide different size transform blocks for transform encoding to change coding structure based on the detection of whether a signal is changing in time or frequency to best encode the information relative to human hearing perception. (Page 98, section 7.9.1)

As per claim 17, claim 15 is incorporated and Griesinger, Kendall, and Sheiber fail to specifically teach, but Standard teaches:

wherein the second frequency resolution is coarser than or the same as the first frequency resolution, and the second time resolution is finer than the first time resolution. (Page 98, Section 7.9.1, Standard provides transform length decisions. A short transform length provides greater time resolution with decreased frequency resolution.)

It would have been obvious to someone of ordinary skill in the art at the time of the invention to combine Standard with Griesinger, Kendall, and Sheiber to specifically provide different size transform blocks for transform encoding to change coding structure based on the detection of whether a signal is changing in time or frequency to best encode the information relative to human hearing perception. (Page 98, section 7.9.1)

As per claim 18, claim 17 is incorporated and Griesinger, Kendall, and Sheiber fail to specifically teach, but Standard teaches:

wherein the first frequency resolution is finer than the frequency resolution of the spatial parameters. (Page 98, Section 7.9.1, Standard provides transform length decisions. A short transform length provides decreased frequency resolution.)

It would have been obvious to someone of ordinary skill in the art at the time of the invention to combine Standard with Griesinger, Kendall, and Sheiber to specifically provide different size transform blocks for transform encoding to change coding structure based on the detection of whether a signal is changing in time or frequency to best encode the information relative to human hearing perception. (Page 98, section

7.9.1)

As per claim 19, claim 17 or 18 are incorporated and Griesinger, Kendall, and Sheiber fail to specifically teach, but Standard teaches:

wherein the second time resolution is finer than the time resolution of the spatial parameters. (Page 98, Section 7.9.1, Standard provides transform length decisions. A short transform length provides greater time resolution.)

It would have been obvious to someone of ordinary skill in the art at the time of the invention to combine Standard with Griesinger, Kendall, and Sheiber to specifically provide different size transform blocks for transform encoding to change coding structure based on the detection of whether a signal is changing in time or frequency to best encode the information relative to human hearing perception. (Page 98, section 7.9.1)

Conclusion

25. Refer to PTO-892, Notice of References Cited for a listing of analogous art.

26. Any inquiry concerning this communication or earlier communications from the examiner should be directed to GREG A. BORSETTI whose telephone number is (571)270-3885. The examiner can normally be reached on Monday - Thursday (8am - 5pm Eastern Time).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chameli Das can be reached on 571-272-3696. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Greg A. Borsetti/
Examiner, Art Unit 4141

/Talivaldis Ivars Smits/
Primary Examiner, Art Unit 2626 1/5/2010